



U.S. Department of Transportation
Pipeline and Hazardous Materials
Safety Administration



PHMSA Pipeline Safety Research



**Track Session on Alternative Fuels & Climate Change
June 24-25, 2009**



Alternative Fuels Strategy

- To identify and remove technical issues preventing the safe and environmentally friendly transportation of alternative fuels in pipelines.



Project Types Underway

- PHMSA's R&D program first sought relevant topics in FY 2007 and again in FY 2009.
- Seven projects were awarded with approximately:
 - \$1.7 M PHMSA + \$3.1 M Industry co-sponsoring
- Projects are addressing integrity threats and will drive new knowledge into industry best practices and consensus standards.
 - Majority of projects currently addressing ethanol with one for biogas.



Ethanol Roadmap

- PHMSA ethanol research strategy is following a roadmap built by the industry.
1. Ethanol Sources and Quality Issues
 2. Pipeline Integrity Issues
 3. Pipeline Operations Issues
 4. Standards, Guidelines, Training

Safe & Reliable Ethanol Transportation & Storage Technology Roadmapping Workshop

October 25-26, 2007 • Dublin, Ohio

WORKSHOP SUMMARY RESULTS



November 2007

Organized by



Prepared by



Energetics Incorporated
7144 Columbia Gateway Drive
Columbia, MD 21046 USA
+1 410 953 6239
www.energetics.com



Outputs: What Can We Expect?

- **Oxygen monitoring technology for ethanol pipelines to identify safe operating parameters for mitigating stress corrosion cracking threats**
- **Models to understand crack initiation, growth of short cracks, and growth of large cracks.**
- **Ethanol material compatibility assessments for non-metallic pipeline components**
- **Testing to understand internal corrosion inhibitor performance in biodiesel pipelines**
- **Characterize integrity threats for metallic and non-metallic biogas pipelines**
- **Mitigation of potential cracking from hydrogen pipeline service**
- **Develop safe operating procedures and best practices for CO₂ pipelines**



Remaining Challenges

- **Ethanol** – Technical? – Standards & CFR
- **Biodiesel** – Technical? – Best Practices & CFR
- **Biogas** – Technical? – Best Practices, Standards & CFR
- **Hydrogen** – Remaining needs by ASME (Piping Standard)
- **CO₂** – Leak Detection (CPM), Emergency Flow Restricting Devices , Corrosion



For More Information...

- On the projects addressing this track, please visit:
<http://primis.phmsa.dot.gov/rd/splan.htm>
- On the impacts measured on projects addressing this track visit:
<http://primis.phmsa.dot.gov/rd/performance.htm>
- Or contact:

Jim Merritt

Department of Transportation
Pipeline & Hazardous Materials Safety Administration
Office of Pipeline Safety
P(303) 683-3117
Email james.merritt@dot.gov

Robert Smith

Department of Transportation
Pipeline & Hazardous Materials Safety Administration
Office of Pipeline Safety
P(202) 366-3814
Email robert.w.smith@dot.gov